

## CLAIMS

What is claimed is:

- 1 1. A method of producing compensation transforms comprising the steps of:  
2 generating a plurality of color reference patches;  
3 scanning said patches to produce scanned color space values;  
4 measuring said patches with an optical measuring device to produce measured  
5 color space values; and  
6 creating a compensation table from said scanned color space values and said  
7 measured color space values.  
8
- 1 2. A method according to claim 1, wherein said compensation transforms for CMYK  
2 inks are processed for different levels of K using the formula  $y = af_0(x) + (1-a)f_1(x)$ .  
3
- 1 3. A method according to claim 1, further comprising the step of interpolating  
2 between different levels of K.  
3
- 1 4. A method according to claim 1, wherein said color reference patches represents  
2 different combinations of inks.  
3
- 1 5. A method according to claim 1, further comprising the step of transforming a color  
2 value of a color patch based on the original ink values of said color patch.  
3
- 1 6. A method according to claim 1, wherein said optical measuring device is a  
2 spectrophotometer.  
3
- 1 7. A method according to claim 1, wherein said compensation transforms are a set of  
2 look up tables that map scanned uncompensated CIEL\*a\*b values to compensated  
3 CIEL\*a\*b values.  
4

1 8. A method according to claim 1, wherein said compensation transforms are a set of  
2 look up tables that map scanned uncompensated CIEL\*a\*b values to compensated  
3 CIEL\*a\*b values for different combinations of ink values.  
4

1 9. A method according to claim 1, further comprising the step of mapping scanned  
2 CIEL\*a\*b values to optically measured CIEL\*a\*b values by using a CIEL\*a\*b to  
3 CMY transform for said scanning and a CMY to CIEL\*a\*b transform for said  
4 optical measuring device.  
5

1 10. A method according to claim 1, wherein said compensation transforms are a set of  
2 look up tables constructed out of gamut CIEL\*a\*b values using the least squares  
3 algorithm with CIEL\*a\*b values in the tables that are in gamut.  
4